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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Finnegan, Henderson, Farabow,
Garrett & Dunner, L.L.P.
1300 I Street, N.W.
Washington, DC 20005-3315

EXAMINER	
HANLEY, SUSAN MARIE	

ART UNIT	PAPER NUMBER
1651	

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,278	ROBINSON ET AL.	
	Examiner	Art Unit	
	Susan Hanley	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Susan Hanley is now the examiner of record for this application. Her contact information can be found at the end of this Office Action.

DETAILED ACTION

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. The amendment submitted on 9/10/04 has been entered. Prosecution is reopened in light of new arguments and rejections.

Claims 8-16 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is rejected because the phrase "active antithrombin III" (AT3) is vague and indefinite. It is unclear what the term "active" means in relationship to AT3. The specification discloses at least two types of activity for AT3. The term "activity" is used to describe the serine protease catalytic action of AT3 and its various isoforms. The specification also discloses that AT3 has anti-angiogenic activity. It is unclear which meaning the term has in claim 8. Thus, the

metes and bounds of the phrase are not defined. It is noted on page 3 of the specification recites "the active form of AT, which is defined by intact molecules with the ability to inhibit proteases such as thrombin and factor XIa". However, this description does not define the metes and bounds of the meaning of "active AT3" in claim 8 because a definition *does not specifically limit* the meaning of the term for the purpose of interpreting the claim language. According to the MPEP 2106, Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. E-Pass Techs., Inc. v. 3Com Corp., 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) (claims must be interpreted "in view of the specification" without importing limitations from the specification into the claims unnecessarily). In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). See also In re Zletz, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

Claim Rejections - 35 USC § 102

Claims 8-15 stand rejected under 35 U.S.C. 102(e) as anticipated by O'Reilly (US 2002/0076413) in light of **Webster's Dictionary** (1994).

In the response filed on 6/10/2004, Applicant traversed this rejection on that grounds that the cited prior art did not expressly or inherently teach every element of the claim because O'Reilly teaches away from the instant invention. Applicant states that O'Reilly shows that AT3 having proteolytic catalytic activity, which is referred to as S-AT3, has virtually no effect on tumor volume or capillary cell proliferation and does not combat angiogenesis and that the

proteolytically inactive form, referred to as R-AT3, possesses anti-angiogenic activity. Applicant alleges that the "active AT3" claimed in the instant application refers to AT3 having proteolytic activity.

In light of the rejection under 35 U.S.C. 112, second paragraph, wherein the phrase "active antithrombin III" was held to be indefinite, the phrase will be given its broadest reasonable interpretation when assessing the prior art as directed by the MPEP 2106. According to **Webster's Dictionary**, "active" means capable of functioning or causing action or change (p. 76). Claim 8 is drawn to treating disorders characterized by angiogenesis or arteriogenesis and the specification shows that AT3 has anti-angiogenic activity. Thus, the phrase "active AT3" is interpreted to mean that that the AT3 is capable of functioning as an anti-angiogenic agent. In light of this interpretation, O'Reilly anticipates the claims because he teaches isoforms of AT3, i.e. R-AT3, that have anti-angiogenic activity for treating the claimed diseases. The disclosure by **Webster's Dictionary** is a supporting reference and properly used in a rejection under of U.S.C. 102 since it describes the definition of a kit. MPEP 2131.01.

Claims 8-10, 13 and 15 are rejected under 35 U.S.C. 102(e) as anticipated by Romisch et al. (US 6,399,572) in light of **Webster's Dictionary** (1994).

In light of the rejection under 35 U.S.C. 112, second paragraph, wherein the phrase "active antithrombin III" was held to be indefinite, the phrase will be given its broadest reasonable interpretation when assessing the prior art as directed by the MPEP 2106. According to **Webster's Dictionary**, "active" means capable of functioning or causing action or change (p. 76). Claim 8 is drawn to treating disorders characterized by angiogenesis or arteriogenesis and

the specification shows that AT3 has anti-angiogenic activity. Thus, the phrase "active AT3" is interpreted to mean that that the AT3 is capable of functioning as an anti-angiogenic agent. In light of this interpretation, Romisch et al. teach the administration of AT3 for the treatment of inflammatory diseases such as rheumatoid arthritis, thus meeting instant claim 13, and infectious vasculitis which is an infectious disease that meets the limitation of instant claim 10 (col. 2, lines 18-35 of the referenced patent). A solution of AT3 can be administered by injection of infusion, this meeting the limitations of instant claim 15 regarding the method of administration. Although Romisch et al. do not state that AT3 is effective for treating infectious vasculitis and rheumatoid arthritis because said diseases are characterized by angiogenesis or arteriogenesis, this prior art disclosure meets the instant claims because it practices the steps of the instantly claimed method, namely, that RA and infectious vasculitis are treated by the administration of AT3 to a person in need thereof. The mechanism by which the AT3 achieves a therapeutic effect is an inherent feature of the process. The mechanism of the process of treatment does not bear oh the patentability of the claimed process. Further characterization of what occurs in a known method does not
impart patentability because the outcome of the method is the same. See Ex parte Novitski, 26 USPQ 2nd 1389 (BOPA 1993).

The disclosure by **Webster's Dictionary** is a supporting reference and properly used in a rejection under of U.S.C. 102 since it describes the definition of a kit. MPEP 2131.01.

Claims 8-15 are rejected under 35 U.S.C. 102(e) as anticipated by Green et al. (US 6,593,291) in light of **Webster's Dictionary** (1994).

In light of the rejection under 35 U.S.C. 112, second paragraph, wherein the phrase "active antithrombin III" was held to be indefinite, the phrase will be given its broadest reasonable interpretation when assessing the prior art as directed by the MPEP 2106. According to **Webster's Dictionary**, "active" means capable of functioning or causing action or change (p. 76). Claim 8 is drawn to treating disorders characterized by angiogenesis or arteriogenesis and the specification shows that AT3 has anti-angiogenic activity. Thus, the phrase "active AT3" is interpreted to mean that that the AT3 is capable of functioning as an anti-angiogenic agent. In light of this interpretation, Green et al. disclose methods of controlling undesirable cell proliferation related to angiogenesis comprising the administration of AT3 to a human or animal in need thereof. The AT3 can be made by recombinant means (col. 10, lines 62-68 of the referenced patent) which meets the limitation of instant claim 12 related to how the AT3 is made. A pharmaceutical composition comprising AT3 can be administered intravenously, transdermally or subcutaneously (col. 4, lines 35-47 of the referenced patent) which meets the limitation of instant claim 15 regarding the method of administration. AT3 can be used to diseases related to undesirable angiogenesis such as tumors, blood borne tumors, metastasis, diabetic retinopathy, psoriasis and *Helicobacter*-related diseases (col. 4, lines 48-60 of the referenced patent) which satisfies the limitations regarding the treatment of diseases in instant claims 10-13.

The disclosure by **Webster's Dictionary** is a supporting reference and properly used in a rejection under of U.S.C. 102 since it describes the definition of a kit. MPEP 2131.01.

Claims 8-10, 13 and 15 are rejected under 35 U.S.C. 102(b) as anticipated by Emerson (Blood Coag. Fibrinol. (1994) 5(1): S37).

Emerson discloses that three types of animal models were infected with Gram-negative endotoxacemia or bacteremia and that the administration of high doses of AT3 to said animals is efficacious in limiting or preventing physiological, metabolic, hematological and biochemical abnormalities which lead to an improvement of survival. The infected animals were evaluated as models for human bacteremia or septicemia. This disclosure meets the limitation of claim 10 that requires that the AT3-treated disease is an infectious disease. Bacteremia and septicemia result from infection by a pathogen and are, in turn, transmissible. Therefore they are infectious diseases and meet the limitations of claim 10.

Although Emerson does not state that AT3 is effective for treating infectious diseases because said diseases are characterized by angiogenesis or arteriogenesis, this prior art disclosure meets the instant claims because it practices the steps of the instantly claimed method, namely, that an infectious disease was treated by the administration of AT3 to a person in need thereof. The mechanism by which the AT3 achieves a therapeutic effect is an inherent feature of the process. The mechanism of the process of treatment does not bear on the patentability of the claimed process. Further characterization of what occurs in a known method does not impart patentability because the outcome of the method is the same. See Ex parte Novitski, 26 USPQ 2nd 1389 (BOPA 1993).

Emerson teaches that baboons, rats and sheep were challenged by an intravenous infusion of a pathogenic bacteria, E. coli. AT3 was administered by i.v. phophylactically or

therapeutically. The AT3 that the animal received inhibited thrombin and, therefore, was catalytically active, thus meeting one possible interpretation of "active AT3" as in instant claim 8.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8, 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Green et al. (US 6,593,291) or O'Reilly (US 2002/0076413) in view of Antunes et al. (Int. J. Leprosy (June 2000) 68(2): 143) and **Webster's Dictionary** (1994).

The disclosures of Green et al. and O'Reilly are disclosed *supra.*

Neither Green et al. nor O'Reilly disclose treating leprosy with active AT3.

Antunes et al. disclose that an investigation of the microvasculature of the cutaneous infiltrates of the skin of 39 patient afflicted with leprosy revealed an angiogenic component to the disease. Angiogenesis is mediated by the migration and proliferation of endothelial cells in the affected microvasculature. Antunes et al. state that the detection of angiogenesis in the cutaneous lesions of leprosy may bring about alternate and/or additional strategies for leprosy treatment (p. 143, left column and p. 149, left column).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to treat leprosy with active AT3. Antunes et al. disclosed that leprosy has an angiogenic component that could be targeted in the treatment of leprosy. Green et al. and O'Reilly teach that diseases that are associated with angiogenesis are suitable for therapy with active AT3. Thus, the ordinary artisan would have been motivated to treat leprosy with active AT3 because leprosy has an angiogenic component, Antunes et al. suggest that treatment be directed to the angiogenic component and Green et al. and O'Reilly disclose that AT3 is suitable for treating diseases that are mediated by angiogenesis. The ordinary artisan would have had a reasonable expectation that active AT3 would serve as an effective therapy for leprosy because Green et al. and O'Reilly have demonstrated that AT3 is effective for treating diseases related to angiogenesis.

The following prior art is cited but not relied upon:

Minnema et al. Blood (Feb. 2000) 95(4) : 1117-1123.

Edmunds et al. Blood (June 1998) 91(12) : 4561-71.

O'Byrne et al. Eur. J. Cancer (2000) 36 : 151-69.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Hanley whose telephone number is 571-272-2508. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JEAN C. WITZ
PRIMARY EXAMINER